

ADDITIONAL NOTES ON THE FERNS OF LORD HOWE ISLAND.

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These Notes are the result, partly of the observations made by Mr. R. B. Oliver, of Auckland, during a recent trip, and partly of my own further investigations.

i. POLYSTICHUM.

In my paper on "The Ferns of Lord Howe Island" (These Proceedings, 1912, p. 395), I referred to the fern known on the Island as the "Heavy Fern," as *Polystichum Moorei* Christ. This was due to the fact that this fern was so named in the National Herbarium, Sydney, and that the late Mr. E. Betche had made the following note on the cover: "Not specifically different from *Aspidium adiantiforme* (Forst.) J.Sm., (*A. capense* Willd.), according to Kew, but Christensen supports the view of Christ, and keeps it as a distinct species." I did not attempt to go behind this; and when Dr. Christ wrote, after examining the small fern that Edward King had collected for me, that it appeared to him to be but an umbrageous variety of *P. Moorei*, I took it for granted that he was comparing it with the so-called "Heavy Fern," and, therefore, set up the smaller one as a new species, under the name, *Polystichum Kingii*. Mr. Oliver was the first to suggest a doubt regarding the identity of Dr. Christ's *P. Moorei*; and the result of further inquiry, ending in a letter from Dr. Christ himself, was the conviction that *P. Moorei* (originally returned as *P. aculeatum*, var. *Moorei*) was not the "heavy fern," but was identical with my *P. Kingii*. The position now stands thus: *P. Kingii* becomes a

synonym of *P. Moorei*, and the "heavy fern" has to be described as a new species. I am dedicating it to Mr. Thomas Whitelegge, who was, apparently, the first to point out how this fern differed from *P. capense*, with which it had been identified.

1. *P. MOOREI* Christ.

P. aculeatum var. *Moorei* Christ, in Proc. Linn. Soc. N.S.Wales, 1898, p. 146; *P. Kingii* Watts, Proc. Linn. Soc. N.S.Wales, 1912, p. 401.

Western base of Mt. Gower (King, Oliver).

Var. *TENERUM*, var. nov.; f. *umbrosa*, op. cit., 1912, p. 403.

Tenerius, paleis ad stipitis basin dense et pulchre confertis, stipiti supra et rhachidi subnudis.

Dr. Christ thought this an umbrageous form of *P. Moorei*, but it is doubtful if it is limited to specially shaded places.

Among rocks at mouth of Soldier Creek (Maiden); base of Mt. Gower (King).

2. *P. WHITELEGGEI*, sp. nov.

P. adiantiforme (Forst.), J.Sm. (*P. capense* Willd.), *fid.* Kew; *P. Moorei* Christ, *fid.* Betehe in Herb. Syd., and Watts, *loc. cit.*; local name "Heavy Fern."

Rhizoma erectum robustum, fibrosis radiculis atris, validis densis instructum; stipes validus, ad 75cm. longus, paleis brunneis dense vestitus, infra magnis fusco-brunneis, supra parvulis teneris pallido-brunneis; rhachis et costæ paleis similibus vestitæ; frons ovato-lanceolata vel subtriangularis, subinæqualis, plus minusve curvata, pinnis lanceolatis acuminatis, sursum curvatis, pinnulis numerosis lanceolatis sursum curvatis, pinnatilobis, lobis inferioribus ad rhachidem divisus, segmentis integris vel crenulatis vel sublobatis, acroscopicis evolutioribus, marginibus plus minusve recurvis; sori pernumerosi, interdum fere integram frondis faciem subtus tegentes, indusio magno rotundo membranaceo, facile cadenti, marginibus subrecurvis.

Fairly common on mountain-slopes.

This fern is certainly distinct from *P. adiantiforme* (*capense*), which has a creeping rhizome, a firmer and more persistent indusium, and other distinguishing characters. *P. adiantiforme* must now be removed from the flora of Lord Howe Island.

ii. DRYOPTERIS.

D. apicalis, *D. nephrodioides*, and *D. decomposita* have been recorded from the Island, the first two as indigenous. *D. apicalis* is very rare. I did not find it during my many excursions to different parts of the Island, but Mr. Oliver has sent me a specimen of what certainly appears to be this species. I am not quite sure that there has not been some confusion between *D. apicalis* and *D. nephrodioides*. The latter is described (H. B. Syn., p. 266) as having the rhachis smooth on the under side, and the sori solitary on the anterior side of each lobe; while *D. apicalis* is said (*ibid.*, p. 499) to have the rhachis "glanduloso-pilose," and the sori at the sinuses of the lobes. The specimens labelled *D. nephrodioides* in the National Herbarium, Sydney, however, scarcely have a smooth rhachis, and the placing of the sori is not always easy to distinguish with certainty. Christensen (Index Fil.) regards *D. nephrodioides* as a variety of *D. decomposita*, but, as the late Mr. Betehe remarked, in an Herbarium note, he cannot have seen a specimen. Both *D. apicalis* and *D. nephrodioides* must stand for the present, but I have not seen an undoubted specimen of *D. decomposita* from the Island.

iii. MARATTIA.

The Marattia of Lord Howe Island deserves closer study. Domin, in his "Beiträge," regards it as *M. fraxinea* simply, and denies it rank even as var. *salicina* (Sm.), under which name I previously recorded it. But, after seeing and examining many specimens of *M. fraxinea* in North Queensland, I am convinced that the var. *salicina*, in which the sori are much less numerous, considerably larger, and more medial than marginal, ought to stand. Both the Lord Howe fern and that of North Queensland are growing in my bush-house, and the differences, in the young forms, are most marked.

iv. OPHIOGLOSSUM.

In my paper on "The Ferns of Lord Howe Island," I recorded *Ophioglossum vulgatum* L., as new to the Island. Since then, I have gone carefully into the question of the geographical distribution of this remarkable plant. Christensen, in his Index Fil., follows those who exclude *O. vulgatum* from Australia, limiting it to "Europe, Madeira, Amer. bor., Asia occ.," and assigning to Australia and New Zealand several distinct species, as follows: *O. Dietrichiae* Prantl, *O. Prantlii* C. Chr., (*O. lanceolatum* Prantl), *O. costatum* R. Br., *O. Luersseni* Prantl, *O. minimum* Hook. fil., *O. coriaceum* A. Cunn., (*O. gramineum* R. Br.), and *O. pedunculatum* Desv. My Lord Howe specimens, therefore, had to be re-examined. The result has been to convince me that the supposed Australian species show so few decided differences from *O. vulgatum* as to be indistinguishable, except as varieties, or even forms. In this, I follow C. Luerssen, who, in the Journ. Mus. Godeff., iii., 233ff(1875), subjected the genus to exhaustive examination and figured the various Australian forms with much patience. Domin also, in his "Beiträge zur Flora und Pflanzengeographie Australiens," Vol i., accepts the findings of Luerssen. The fact is, the apparent differences are not constant. Luerssen shows, it seems to me conclusively, that no distinctive specific characters are to be found in (a) the number of leaves springing from one rhizome, (b) the length of the common stipes, (c) the form of the sterile leaf-section, (d) the relation between the sterile and fertile parts, (e) the vascular formation of the stipes, (f) the number of the sporangia and the form of the sterile apex, (g) the nervature of the sterile part of the leaf, (h) the form of the surface-cells of the sterile leaf-section, (i) the presence or absence of a central nerve, (k) the shape and character of the spores. Where the variations are so marked, and the different forms run into one another so freely, it would seem preferable to give the name *O. vulgatum* L., to all the specimens, with some indication of the general form of the plant collected, such as is attempted in the names "gramineum" and "lanceolatum." For the present, I record the Lord Howe specimens as *O. vulgatum* L., var. *lanceolatum* Luerss.

V. TREE-FERNS.

Mr. Oliver, at my suggestion, made careful notes of the characteristics of the Tree-Ferns of the Island, and I am venturing to reproduce his notes in their entirety.

Alsophila robusta C. Moore.—Trunk smooth, with clean, distinct scars. Dead fronds fall away. Stipes with linear, brown scales at base. Rhachis and costæ muricate throughout. No scales or tomentum." [But see description below.]

Hemitelia Moorei Bak.—Trunk rough with broken stipes of fallen fronds. Stipes covered with dense, linear scales. Rhachis and base of costæ with scales more or less thickly over the whole undersurface, and muricate below the scales; upper surface similar, but fewer scales and fewer prickles; costæ tomentose above."

Cyathea brevipinna Bak.—Trunk smooth, with clean, distinct scars. A few scales at the base of the inner stipes; otherwise stipes, rhachis, and costæ quite clean and muricate, except costæ tomentose above."

Cyathea Macarthurii Bak.—Trunk rough with broken bases of fallen fronds. Dead fronds hanging from top of trunk. Stipes with long, linear, brown scales at base. Undersurface of rhachis and costæ muricate, and with few scattered scales, and dense appressed tomentum."

The characters noted by Mr. Oliver are of the greatest importance in the determination of the tree-ferns, the pinnæ alone being often of little determinative value.

Alsophila robusta was published in the *Flora Australiensis* as *A. australis* var. *nigrescens*, but it is an undoubted species, and Moore's name should be appropriated to this fine tree-fern.

ALSOPHILA ROBUSTA C. Moore, *Herb. Syd.*; *A. australis* ? var. *nigrescens* Benth., *Fl. Austr.*, vii., 711.

Caudex 8-10 ped. altus, robustus, subglaber per frondicum eicatrices cadentium; stipes 3-5 dm. longus, turgidus, subglaucus, basi paleis linearibus longis (ad 4 cm.) vel brevibus, albescentibus ad pallido-brunneis, serratis, dentibus brunneis nitentibus; frons 10-15 dm. longa et 6-8 cm. lata, horizontaliter pinnata; pinnæ ad 40 cm.

longæ et 15 cm. latæ, virides, breviter acuminatæ, rhachidibus et costis in superiore latere dense tomentosis, subtus muricatis, punctis cum apice rotundo brunneo nitenti; pinnulæ creberrimæ, ad 10-12 cm. longæ et 1-1.25 cm. latæ, in pinnulas sessiles, falcatas divisæ; pinnulis ii. integris vel erenulatis, pinnato-nervatis, marginibus recurvis; sori 10-12 in singulis pinnulis ii.; color læte-viridis, subtus subcæruleus, siccitate fuscescens; textura firma subcoriacea.

This fern is easily distinguished from all its congeners, even by the bluntish pinnæ; the swollen base of the stipes is quite distinctive; it could only have been referred to *A. australis* through the insufficiency of the specimens available.